

POTABLE WATER INTERCONNECTION STUDY FOR THE JORDAN LAKE PARTNERS

ATTACHMENT A – SCOPE OF WORK

The Jordan Lake Partnership for the purposes of this scope of work includes the following:

Town of Apex	Town of Cary
Chatham County	City of Durham
Town of Hillsborough	Town of Holly Springs
Town of Morrisville	Orange County
Orange County Water and Sewer Authority (OWASA)	Town of Pittsboro
City of Raleigh	City of Sanford*
Wake County	

Scope of services to be performed by Hazen and Sawyer for Phase 1 will include the following tasks:

Task 1 – Data Collection

- Interview public works and/or planning department staff designated by each partner to identify and document existing and planned interconnections with adjacent water systems, availability of GIS data, system modeling studies within the past five years, current/planned modeling efforts, and capacity concerns.
- Document unique features of each water system that could impact water demands (i.e. Town of Cary prohibits automatic irrigation on Mondays significantly reducing its demand).
- Document estimates of average response time for a municipality to implement a water transfer.
- Obtain available GIS data and latest model for each potable water system.
- Document and obtain copies of existing water transfer agreements.
- Identify and document potential system vulnerabilities based on interviews/discussions with staff.
- Document current treatment capacity, production rates, corrosion inhibitors, disinfectants, and other additives (particularly those that may affect lead and copper testing) for existing water plants.

Task 2 – System Evaluation and Mapping

- Prepare an overall map showing existing service areas and pressure zones as well as individual maps of each interconnection that document the following: estimated flow transfer capacity at each connection (both directions), pipe sizes, and pressure gradient, transfer limitations (both sides).
- Identify and map potential interconnection points within the study area, document the sizes of nearby water distribution mains, and provide a capacity and energy requirement estimate for transfers in both directions.
- Identify and map water storage tank locations and flushing locations within the study area.
- Identify and document areas of highest vulnerability due to an immediate water shortage (i.e. line break). Note: This effort will be based on interviews and currently available data. Phase 2 will revise this information based on updated model results.
- Identify opportunities for wheeling water, defined as transferring water from one system to another through a third system.
- Prepare a color coded pressure zone map for the Jordan Lake Partnership.
- Document disinfection and other treatment and technical issues relevant to existing and potential interconnections.
- Outline a basic operational decision making matrix for initiating a water transfer applicable to all partners.

Task 3 – Technical Memorandum

- Prepare a draft report and a final report documenting all of the above items and pertinent information developed during the study. The final report will serve as a reference document for each partner for interconnection reporting in their respective Local Water Supply Plan updates.

Task 4 – Meetings

- Meet with the Jordan Lake Partners on at least two occasions: 1) to review proposed scope of work for Phase 1, 2) to present preliminary findings for review and comment.

Draft Scope of Services for Phase 2:

Task 1 – Capacity Optimization

- Integrate existing water system models between participating partners.
- Define modeling scenarios to be investigated with participating partners to include supply interruptions, line breaks and other emergency scenarios.
- Develop a matrix of interconnection capacities with various demand levels and simultaneous transfers with multiple systems.
- Evaluate potential water quality issues for transfers.
- Provide costs and capacities for all alternatives to increase capacity with capital projects.
- Document required legal agreements to implement the identified capital projects (new or amended).

Task 2 – Capital Project Prioritization

- Prioritize identified projects to increase potential for regional cooperation during water shortage for both drought and immediate issues.
- Summarize benefits to each partner for each project.

Task 3 – Meetings

- Meet with participating partners to define modeling scenarios.
- Meet with participating partners to discuss project prioritization.
- Meet with Public Water Supply (PWS) personnel as required.

Project Team:

The Hazen and Sawyer Project Team will include the following:

Project Director: Michael Wang, Ph.D, P.E.

Project Manager: Jeff Cruickshank, P.E.

Technical Assistance:

Interviews/Data Collection: Meg Roberts, P.E., Chris Belk, P.E., Crystal Bonge, P.E.

GIS: Linda Diebolt, Todd Davis

Modeling: Wayne Zhang, Ph. D, P.E., Meg Roberts, P.E., Ricardo Espinosa, P.E.

Project Costs:

Hazen and Sawyer proposes to perform the Phase 1 scope of services on an hourly rate basis not to exceed the amount of \$48,700. The proposed fee is summarized below.

<u>Scope Task</u>	<u>Hours</u>	<u>Not to Exceed</u> <u>Amount</u>
Task 1 - Data Collection	100	\$ 13,400
Task 2 - Evaluation	150	\$ 20,100
Task 3 - Technical Memorandum	100	\$ 13,400
Task 4 – Meetings	12	\$ 1,800
Total Amount	362	\$ 48,700

Compensation:

Compensation for services rendered shall be on the Standard Hourly Rate method where an amount equal to the cumulative hours charged to the Project by each class of employee is multiplied times the Standard Hourly Rates for each applicable billing class for all services performed on the Project. The product of that multiplication shall be multiplied by a Direct Labor Multiplier of 3.15.

Table 1 depicts example direct salary rates for various staff positions expected to be involved with this project. The actual rates billed will be based upon the individuals actually working on the project and may differ than those shown in Table 1.

Table 1 – Direct Salary Rates	
Position	Direct Salary Rates
Vice President	\$67
Senior Associate	\$61
Associate	\$55
Senior Principal Engineer	\$46
Engineer/Scientist	\$36

The Direct Labor Multiplier will be applied to actual labor costs and will include all overhead, profit, travel, computer costs, word processing, secretarial, telephones, faxes, reproductions, etc.

It shall be understood the aggregate cost ceiling shall not be exceeded. Should cost of services for one service category overrun an individual cost ceiling, remaining fees under other individual cost ceilings may be utilized.

Schedule:

Hazen and Sawyer would propose to complete the Phase 1 scope of services within three months of receipt of an authorization to proceed. Work is anticipated to begin in early 2011. The schedule shown below assumes a project start in January 2011:

Kick-off Meeting with Jordan Lake Partners	January 2011
Data Collection (Interviews, GIS, Agreements, etc.)	January 2011 – February 2011
Evaluation	February 2011 – March 2011
Draft Technical Memorandum	March 2011 – April 2011
Presentation/Meet with Jordan Lake Partners	April 2011
Finalize Technical Memorandum	April 2011